PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Postpartum Family Planning Integration with Maternal, Newborn, and Child Health Services: A Cross-Sectional Analysis of Client Flow Patterns in India and Kenya
AUTHORS	Mackenzie, Devon Pfitzer, Anne Maly, Christina Waka, Charles Singh, Gajendra Sanyal, Abanti

VERSION 1 – REVIEW

REVIEWER	Charlotte Warren Population Council, USA
REVIEW RETURNED	14-Aug-2017

GENERAL COMMENTS	Thank you for the opportunity to review this paper. On the whole it is clearly laid out and informative. However I have the following comments: More detail required on what actually constitutes the "different types of MNCH" services. The authors give detail as to the type of child health services (~line 35 page 6) but not for ANC or PNC. The discussion makes very little reference to other studies in fact only 2 references are used in the entire section. While much of the integration literature focuses on FP and HIV there is still quite a bit on ANC /PMTCT and Postpartum + FP + HIV that references can be drawn including Integra data from Kenya. If there truly are very few studies looking at the MNCH-FP integration - this should perhaps also be stated. please see papers below drawn from a quick google search: Achyut P, Mishra A, Montana L, Sengupta R, Calhoun LM, Nanda P. Integration of family planning with maternal health services: an opportunity to increase postpartum modern contraceptive use in urban Uttar Pradesh, India. The Journal of Family Planning and Reproductive Health Care. 2016;42(2):107-115. doi:10.1136/jfprhc-2015-101271. Rajan S, Speizer IS, Calhoun LM, Nanda P. Counseling during Maternal and Infant Health Visits and Postpartum Contraceptive use in Uttar Pradesh, India. Int Perspect Sex Reprod Health. 2016 Dec;42(4):167-178. doi: 10.1363/42e2816. Previous literature showed that even though women were counseled on FP in ANC uptake did not always happen - see South Africa and

	Latin America literature. it would be helpful to recognize this in the discussion too - that although women may be counseled during pregnancy the messages should be re-emphasized across the continuum. The numbers for PNC and FP are quite small - perhaps mention that this evidence demonstrates PNC is still not so commonly provided but is important to recommend women receive PNC for themselves and their infants. While the paper is on analyzing the client flow patterns it is important to make this point - as presumably this is a reason for needing to collect the data. There is no conclusion in the main text - it would be helpful to have one as it ends rather abruptly.

REVIEWER	Beena Varghese Public Health Foundation of India, Gurgaon, India
REVIEW RETURNED	14-Sep-2017

GENERAL COMMENTS	The integration of family planning services into MNCH care is a timely and important topic. Authors have done a good job describing the issue and the results of their study. Some attention to issues below would make this paper more useful to the public health community. • Some additional description of the facilities used in the study: type of facility (district or sub district levels hospital), level of HR, infrastructure etc., would be useful to reader. • Discussion section could be strengthened further, with more linkages to results. Some hypothesis may be used to explain some of the results. For example, authors could provide some insights into why the travel time to facility is lined to time spent at the facility or its effect on integration of services. • Tables 1 and 2 are too descriptive may be shortened for the paper, details may be provided as additional information. • It is unclear if the regression models esp. Poisson models add any significant analyses value to the results and conclusions. • First line in discussion section talks about targeted programmatic support—something not discussed much while describing the facilities. May be useful to bring in the linkages about the characteristics of various facilities to the results and conclusions.

REVIEWER	Andrew Hinde University of Southampton United Kingdom
REVIEW RETURNED	24-Oct-2017

GENERAL COMMENTS	REPORT OF REVIEWER Paper number bmjopen-2017-018580 Title of paper Postpartum family planning integration with maternal, newborn and child health services: a cross-sectional analysis of client flow patterns in India and Kenya

	Journal BMJOpen Reviewer Andrew Hinde, University of Southampton, United Kingdom Date 24 October 2017 My overall view of this paper is that its descriptive results are interesting, its discussion is persuasive and is a useful contribution to the literature, but that two of the models (described in Tables 5 and 6) add very little, and may only serve to confuse the reader. My recommendation is that you revise the paper to remove all reference to the Poisson model reported in Table 5, and the regression model reported in Table 6. The rest of the paper can stand without these models and its contribution will be unaffected. I have several detailed comments which you might address when revising the paper. p. 4, l. 21 'Birdthistle et al. (2014)'. Is this reference number [9]? If so, cite it as such. The same should be done at p. 4, l. 30. p. 7, ll. 9-11 'ANC clients were considered as having seen multiple co-located providers if they received ANC services from one provider and FP services from another provider'. Do you have any idea about whether clients might visit more than one provider within a network of providers in the same day? If they are travelling some distance to a town, say, might they 'kill two birds with one stone' and try to access several services in the same day, even if these were not co-located? p. 11, ll. 4-5 I could not see where Online Table S1 has been graphed in either of Figures 2 or 3. To the extent that I could work it out (and I did not have a microscope to hand to look at the figures) both Figure 2 and Figure 3 are graphing elements of Online Table S2. p. 11, l. 11 I think '0-15.7% of clients receiving PNC' should be '0-10.9%' and, later on, '2.2-10.9%' should be '2.2-4.1%'. p. 11, ll. 20-21 My reading of Online Table S2 is that you have ANC and PNC transposed here. 34.5% of clients at Bondo Hospital accessing PNC and 1.8% of clients accessing ANC also received FP services. Also, in l. 20 the figure of 20.5% quoted for clients accessing child health should be 20.2% to be consistent with Online Table S2. p. 11, ll. 34-35 'In Bondo health centers, single provider integration was even more prevalent; one health center recorded 77.6% of child health-FP clients, 90.5% of PNC-FP clients, and 92.3% of …'. These numbers are the same as the numbers described as being from 'Bondo health centers' in Table 3. Does this imply that there was only one health center in Bondo? Or that by coincidence, all the health centers in Bondo recorded exactly the same percentages? p. 14, ll. 6-8 Change to read 'the odds of integration for clients travelling more than an hour are 0.4 times the odds of integration for clients travelling less than 30 minutes to the facility.' p. 14, Table 4 The odds of integration are likely to be greater if clients see more providers. If a client sees only one provider, then integration can only occur if that provider has, in the terms of Figure

	1, 'consolidated' care. If a client sees two providers, then integration will occur if either provider has 'consolidated' care or if the two providers co-co-ordinate and cross-refer. The fact that you are explicitly introducing into your model the number of providers seen raises the question of whether these are at the same facility. In Table 4, you just write '[n]umber of providers seen'. In the text (p. 14, l. 9) you refer to 'each additional provider seen at the facility'. Table 5. I confess that I did not know how to interpret this model. The model is designed to 'estimate the association between MNCH-FP integration and number of providers seen' (p. 15, ll. 2-3). But surely those who receive integrated care will very likely have seen more providers on the average as those who received integrated care will include (1) those who saw providers with consolidated care and received two or more services from a single provider plus (2) those who saw more than one co-located provider and received one service from each of two or more different providers. Those who did not receive integrated care are likely to have only seen one provider. I am also not convinced that Poisson regression is the most appropriate method to use here. I accept that Poisson regression is for count data and that number of providers seen is a count variable. But Poisson regression is more natural when the outcome variable is the result of a process (e.g. births in the last five years, or road accidents in a stretch of road) where there is some underlying rate to be modelled/estimated (e.g. birth rate, or road accident rate). I think it is rather convoluted to work out what the underlying rate is in this model. It seems something like 'rate of providers seen per visit' which is not in my opinion an easily graspable idea. Table 6. What is the reader supposed to take away from this model? In order to interpret it, it would be helpful to have some hypotheses. What do you expect to be the association between MNCH integration and time spent at a facility? Integrated services might lead to a longer time being spent, as it takes more time to receive two services than to receive one service. If a facility only offers one service, its clients might be in and out more quickly than if a facility offers several services through either a consolidated provider or a set of co-located providers. The impact of integration on the time spent may depend on whether it is consolidated integration with a single provider or co-located integration. pp. 16-18 I am not supposed to be an expert in the substantive topic of this paper (this is a statistical review), and I am not, but as it happens I have done a limited amount of work in this area (e.g. in Guatemala), and I have published papers on fertility in sub-Saharan Africa. So I will venture to say that the discussion in this paper is persuasive and makes several important points, including (1) the need to look at sustaining interventions (p. 16, ll. 15-16); (2) the need to distinguish between ANC1 and later ANC visits because counselling is more likely at later visits so that most mothers who make only one ANC visit never receive counselling (p. 17, ll. 14-15); (3) the use of more 'context-specific child health service categories' in the client flow tool (p. 17, ll. 20-21); and (4) the discussion of the impact of travel time on the receipt of integrated services (p. 18, ll. 6-12). Moreover, these points derive from the descriptive analysis presented in Table 3 , Figures 2 and 3 and Online Tables S1 and S2, and the model reported in Table 4, and can stand without reference to the models reported in Tables 5 and 6. p. 17, ll. 33-35 'At the facility level, sites focused on primary health

	care may be more conducive to integration …'. There is evidence for this in Bondo, but I could not find convincing evidence in your analysis for other locations. Online Table S2 Some more explanation of the numbers in the table would help. For example could you briefly explain what the 'non-MNCH' visits were? These are the 243 visits (2,158 – 1,915) which are not included in Online Table S2.

VERSION 1 – AUTHOR RESPONSE

Many thanks to the reviewers for their thoughtful and insightful feedback. We have revised our manuscript to address the points raised as detailed below.

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Reviewer 1

Comment 1: More detail required on what actually constitutes the "different types of MNCH" services. The authors give detail as to the type of child health services (~line 35 page 6) but not for ANC or PNC.

Response: Our definitions of what constituted ANC, PNC, and child health services are based on the services listed in the client flow form as follows:

- ANC: The form contained one checkbox for "Antenatal care" which we used as the metric for receipt of ANC services. This encompassed any services the provider felt constituted providing antenatal care to their client. While we also included checkbox options on the form of specific components that might be provided during antenatal care (e.g. STI screening; PMTCT; FP counseling; maternal, infant young child nutrition counseling; iron folate-mother), we did not define client receipt of those other services alone as evidence of ANC provision since they are individual components of an overall package of care or not specific to ANC alone.
- PNC: The form included checkboxes for "postnatal check-mother" and "postnatal check-baby." Receipt of PNC services was defined as receipt of either or both of those postnatal checks.
- Child health: The category of child health included several specific child health services as described in the manuscript ("child immunization," "child weighing/MUAC," "iron folate-child," "Vitamin A-child"). This level of differentiation for child health with nutrition interventions listed was included in the checkboxes on the client flow form to address a secondary research question specific to family planning and nutrition integration in Kenya. This topic was explored in a separate recent publication on FP and maternal, infant, and young child nutrition integration in Kenya (Cooper et al., 2017) which we have added to the citations for this paper (p. 5 in marked copy). As noted in the limitations, we neglected to include a checkbox for treatment of sick children and thus we had to recode many details on specific services that providers wrote into the "Other (specify)" box as child health services, such as child consultations or curative services for malaria or other illnesses.

We have revised the text on p.6/p.7 of the manuscript (with markup displayed) to note more detail on how we defined those three categories of MNCH services. We have also added the integration client flow form as a supplemental file to make it clearer for readers to see the options for providers to record services provided.

Comment 2: The discussion makes very little reference to other studies in fact only 2 references are used in the entire section. While much of the integration literature focuses on FP and HIV there is still

quite a bit on ANC /PMTCT and Postpartum + FP + HIV that references can be drawn including Integra data from Kenya.
If there truly are very few studies looking at the MNCH-FP integration - this should perhaps also be stated.
please see papers below drawn from a quick google search:
Achyut P, Mishra A, Montana L, Sengupta R, Calhoun LM, Nanda P. Integration of family planning with maternal health services: an opportunity to increase postpartum modern contraceptive use in urban Uttar Pradesh, India. The Journal of Family Planning and Reproductive Health Care. 2016;42(2):107-115. doi:10.1136/jfprhc-2015-101271.
Rajan S, Speizer IS, Calhoun LM, Nanda P. Counseling during Maternal and Infant Health Visits and Postpartum Contraceptive use in Uttar Pradesh, India. Int Perspect Sex Reprod Health. 2016 Dec;42(4):167-178. doi: 10.1363/42e2816.
Previous literature showed that even though women were counseled on FP in ANC uptake did not always happen - see South Africa and Latin America literature. it would be helpful to recognize this in the discussion too - that although women may be counseled during pregnancy the messages should be re-emphasized across the continuum.

Response: Thank you for raising these excellent points. We have added references to related literature and to several recent review articles on PPFP integration to the discussion section:

- Blazer C, Prata N. Postpartum family planning: Current evidence on successful interventions. Open Access J Contracept 2016;7:53-67.
- Church K, Warren CE, Birdthistle I, et al. Impact of integrated services on HIV testing: A nonrandomized trial among Kenyan family planning clients. Stud Fam Plann 2017;48(2):201-218.
- Cleland J, Shah IH, Daniele M. Interventions to improve postpartum family planning in low- and middle-income countries: Program implications and research priorities. Stud Fam Plann 2015;46(4):423-441.
- Karra M, Fink G, Canning D. Facility distance and child mortality: A multi-country study of health facility access, service utilization, and child health outcomes. Int J Epidemiol 2017;46(3):817-826.
- Mayhew SH, Ploubidis GB, Sloggett A, et al. Innovation in evaluating the impact of integrated service-delivery: The Integra indexes of HIV and reproductive health integration. PLoS One 2017;11(1):e0146694.

To your points, we included a discussion regarding FP counseling during ANC in our revised manuscript (p. 19 with markup displayed), including that the Cleland et al. (2015) review indicated that short, single FP counseling sessions during ANC had no impact on FP uptake, but multiple FP counseling sessions and interventions that combined FP integration across antenatal and postnatal care have been shown to increase contraceptive use during the first year postpartum. We have revised the discussion section to emphasize the importance of including FP counseling and services throughout the reproductive continuum of care and to note the continued need to improve coverage of PNC in general.

We found the two papers you mentioned very interesting though somewhat hard to interpret given the conflicting results presented. Both share results of an impact evaluation of the Urban Reproductive Health Initiative in India: Achyut et al. (2016) concluded from analysis of the evaluation's midline data that women who received FP information during ANC in the third trimester were more likely to use a modern method of contraception during the postpartum period than those who did not, while Rajan et al. (2016) presented results from the evaluation's endline survey that found little support for associations between antenatal FP information from health professionals or CHWs and subsequent use of PPFP (though they note in limitations that the small sample of women who accessed antenatal services may have limited the ability to find a statistical association). Due to space limitations and

uncertain interpretation of this difference in results between midline and endline, we prioritized citation of the Cleland et al. (2015) PPFP review article.

Comment 3: There is no conclusion in the main text - it would be helpful to have one as it ends rather abruptly.

Response: Good point, we have added a concluding paragraph.

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Reviewer 2

Comment 1: Some additional description of the facilities used in the study: type of facility (district or sub district levels hospital), level of HR, infrastructure etc., would be useful to reader.

Response: Thank you for your suggestion, we have added the detail on the type of facility to Table 1 (see p. 5). We would like to note that a companion paper from the same study, authored by Anne Pfitzer et al., on "Characteristics of successful integrated family planning and maternal and child health services; Findings from a mixed-method, descriptive evaluation" is currently under review with BMC Health Services Research. That paper includes a robust description of the study sites as well as analysis of infrastructure and staffing issues obtained from key informant interviews. If possible, we will add a citation to that paper (we have responded to peer review comments on that paper and, while there is no guarantee the revision will be accepted, we have added it as a reference in hopes of news in the near future).

Comment 2: Discussion section could be strengthened further, with more linkages to results. Some hypothesis may be used to explain some of the results. For example, authors could provide some insights into why the travel time to facility is lined to time spent at the facility or its effect on integration of services.

Response: We have revised the discussion section to further emphasize our results in the context of similar research. As we note on p. 20, we have several hypotheses about why greater travel time to the facility is linked to lower receipt of integrated services, including provider perceptions that these clients do not have sufficient time to access integrated services, or clients exhibiting concern about time limitations at the facility. Further research would be needed to tease out specific reasons why clients with the longest travel times were least likely to access integrated services. As we have added, though, this finding seems in line with other recently-published research on child health that found an association between greater travel distances and lower use of health facility services (Karra et al., 2017).

Comment 3: Tables 1 and 2 are too descriptive may be shortened for the paper, details may be provided as additional information.

Response: We have removed the categorical breakdown of the descriptive information to simplify Tables 2A and 2B (p. 9-10).

Comment 4: It is unclear if the regression models esp. Poisson models add any significant analyses value to the results and conclusions.

Response: Noted, we have removed Table 5 on the Poisson regression model of MNCH-FP integration as predictor of number of providers seen.

Comment 5: First line in discussion section talks about targeted programmatic support—something not discussed much while describing the facilities. May be useful to bring in the linkages about the characteristics of various facilities to the results and conclusions.

Response: We have revised the first paragraph in the discussion section to refer more explicitly to the service delivery platforms targeted by program interventions (p. 17).

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Reviewer 3

Comment 1: My overall view of this paper is that its descriptive results are interesting, its discussion is persuasive and is a useful contribution to the literature, but that two of the models (described in Tables 5 and 6) add very little, and may only serve to confuse the reader. My recommendation is that you revise the paper to remove all reference to the Poisson model reported in Table 5, and the regression model reported in Table 6. The rest of the paper can stand without these models and its contribution will be unaffected.

Response: Thank you for your critique, we agree regarding the Poisson model and have removed Table 5 entirely. We feel that Table 6 on length of time spent at the facility speaks to concerns among program implementers that integration of service delivery may detrimentally increase waiting times for clients. Quantitative evidence on integration of FP and HIV services (Church et al. 2017, now cited in the discussion section) suggested that clients accessing services at facilities that were part of an HIV-FP integration intervention had longer wait times than clients at comparison sites. Our client flow data, however, did not show a significant increase in length of facility visit for clients accessing integrated services vs. those who did not. We are not aware of any other postpartum family planning integration literature that quantifies differences in length of visit by integration status and believe this contributes novel information to the field. Your points, however, have helped us to strengthen the discussion section around this particular finding and we thank you for your observation.

Comment 2: p. 4, l. 21 'Birdthistle et al. (2014)'. Is this reference number [9]? If so, cite it as such. The same should be done at p. 4, l. 30.

Response: Noted and changed in the text on p. 4.

Comment 3: p. 7, ll. 9-11 'ANC clients were considered as having seen multiple co-located providers if they received ANC services from one provider and FP services from another provider'. Do you have any idea about whether clients might visit more than one provider within a network of providers in the same day? If they are travelling some distance to a town, say, might they 'kill two birds with one stone' and try to access several services in the same day, even if these were not co-located?

Response: Our tool contained checkboxes for details of services the client received at the facility and services providers referred them to at the same facility ("internal referrals" between co-located providers). We also included a yes/no checkbox for "external referrals" i.e. whether the provider referred them for services at another location outside of that health facility, as part of a network of providers. Among the 2,158 client visits we analyzed, there were a number of external referrals made (370 by the first provider seen, 281 by the second provider, 161 by the third, 23 by the fourth, and 4 by the fifth). We cannot tell however from our client flow data whether the client visited other places for health services that day or not since they were not tracked beyond their visit to that particular facility.

Comment 4: p. 11, ll. 4-5 I could not see where Online Table S1 has been graphed in either of Figures 2 or 3. To the extent that I could work it out (and I did not have a microscope to hand to look at the figures) both Figure 2 and Figure 3 are graphing elements of Online Table S2.

Response: That is correct, Figures 2 and 3 are graphical representations of data from online table S2. We have revised the text (p. 12) to more accurately describe the content of the online tables. (Sorry the figures became miniscule in the PDF! It appears that the image files came back from our designer with excessive white space around the sides which we have fixed, that should allow them to display properly now in PDF form).

Comment 5: p. 11, l. 11 I think '0-15.7% of clients receiving PNC' should be '0-10.9%' and, later on, '2.2-10.9%' should be '2.2-4.1%'.

Response: Noted and corrected in the manuscript (p. 12 in revised version with markup displayed).

Comment 6: p. 11, ll. 20-21 My reading of Online Table S2 is that you have ANC and PNC transposed here. 34.5% of clients at Bondo Hospital accessing PNC and 1.8% of clients accessing ANC also received FP services. Also, in l. 20 the figure of 20.5% quoted for clients accessing child health should be 20.2% to be consistent with Online Table S2.

Response: Noted and corrected in the manuscript (p. 12).

Comment 7: p. 11, ll. 34-35 'In Bondo health centers, single provider integration was even more prevalent; one health center recorded 77.6% of child health-FP clients, 90.5% of PNC-FP clients, and 92.3% of …'. These numbers are the same as the numbers described as being from 'Bondo health centers' in Table 3. Does this imply that there was only one health center in Bondo? Or that by coincidence, all the health centers in Bondo recorded exactly the same percentages?

Response: There were two health centers in Bondo. Originally we had pooled the data from the Bondo health centers together for analysis because they had similarities in level of integration by service area and too few clients receiving integrated services in certain areas to display facility-level results for receipt of integrated services by a single provider. We had done the same pooling for the two Embu health centers. Upon further reflection, given the variation in percentages across the other facilities in the table, we have adjusted the numbers to split out the data for the two health centers in Bondo and the two health centers in Embu. We have updated Table 3 and the text accordingly with these separated percentages (p. 13-14).

Comment 8: p. 14, ll. 6-8 Change to read 'the odds of integration for clients travelling more than an hour are 0.4 times the odds of integration for clients travelling less than 30 minutes to the facility.'

Response: Changed in the manuscript (p. 15).

Comment 9: p. 14, Table 4 The odds of integration are likely to be greater if clients see more providers. If a client sees only one provider, then integration can only occur if that provider has, in the terms of Figure 1, 'consolidated' care. If a client sees two providers, then integration will occur if either provider has 'consolidated' care or if the two providers coco-ordinate and cross-refer. The fact that you are explicitly introducing into your model the number of providers seen raises the question of whether these are at the same facility. In Table 4, you just write '[n]umber of providers seen'. In the text (p. 14, l. 9) you refer to 'each additional provider seen at the facility'.

Response: We have clarified in Table 4 that we are referring to providers at the same facility (p. 15).

Comment 10: Table 5. I confess that I did not know how to interpret this model. The model is designed to 'estimate the association between MNCH-FP integration and number of providers seen' (p. 15, ll. 2-3). But surely those who receive integrated care will very likely have seen more providers

on the average as those who received integrated care will include (1) those who saw providers with consolidated care and received two or more services from a single provider plus (2) those who saw more than one co-located provider and received one service from each of two or more different providers. Those who did not receive integrated care are likely to have only seen one provider. I am also not convinced that Poisson regression is the most appropriate method to use here. I accept that Poisson regression is for count data and that number of providers seen is a count variable. But Poisson regression is more natural when the outcome variable is the result of a process (e.g. births in the last five years, or road accidents in a stretch of road) where there is some underlying rate to be modelled/estimated (e.g. birth rate, or road accident rate). I think it is rather convoluted to work out what the underlying rate is in this model. It seems something like 'rate of providers seen per visit' which is not□in my opinion□an easily graspable idea.

Response: Thank you for your feedback, we agree and have removed reference to this model and table from the manuscript.

Comment 11: Table 6. What is the reader supposed to take away from this model? In order to interpret it, it would be helpful to have some hypotheses. What do you expect to be the association between MNCH integration and time spent at a facility? Integrated services might lead to a longer time being spent, as it takes more time to receive two services than to receive one service. If a facility only offers one service, its clients might be in and out more quickly than if a facility offers several services through either a consolidated provider or a set of colocated providers. The impact of integration on the time spent may depend on whether it is consolidated integration with a single provider or co-located integration.

Response: As you note, to a certain degree we did expect people accessing MNCH-FP integrated services to spend additional time at the facility than those accessing MNCH services without FP, since those accessing integrated services are likely receiving more services. In fact, the recent study by Church et al. (2017) now cited in the discussion noted that clients accessing services in facilities that were part of an FP-HIV integration intervention were significantly more likely to experience waiting times of more than 30 minutes than those in comparison facilities. Qualitative research and grey literature around integration and its effects on time to access services has detailed a range of experiences, from women and providers complaining that service provision took longer to women expressing appreciating with integrated services because they felt it saved them time to be able to address multiple health concerns at once. We found it interesting that within facilities offering integrated services, it was not taking clients significantly longer to access FP services combined with MNCH services, and believe it prompts additional questions as to why that is. Is the integration efficient enough that they are quickly getting everything they need? Is it robust or are services being combined in a way that reduces quality of care if insufficient time is given to counseling or service provision? These would be interesting avenues for further research.

Comment 12: pp. 16-18 I am not supposed to be an expert in the substantive topic of this paper (this is a statistical review), and I am not, but as it happens I have done a limited amount of work in this area (e.g. in Guatemala), and I have published papers on fertility in sub-Saharan Africa. So I will venture to say that the discussion in this paper is persuasive and
makes several important points, including (1) the need to look at sustaining interventions (p. 16, ll. 15-16); (2) the need to distinguish between ANC1 and later ANC visits because counselling is more likely at later visits□so that most mothers who make only one ANC visit never receive counselling (p. 17, ll. 14-15); (3) the use of more 'context-specific child health service categories' in the client flow tool (p. 17, ll. 20-21); and (4) the discussion of the impact of travel time on the receipt of integrated services (p. 18, ll. 6-12). Moreover, these points derive from the descriptive analysis presented in Table 3, Figures 2 and 3 and Online Tables S1 and S2, and the model reported in Table 4, and can stand without reference to the models reported in Tables 5 and 6.

Response: Thank you, as noted we removed Table 5, and we have added further thoughts as to possible factors related to service delivery integration and length of time spent at the facility.

Comment 13: p. 17, ll. 33-35 'At the facility level, sites focused on primary health care may be more conducive to integration …'. There is evidence for this in Bondo, but I could not find convincing evidence in your analysis for other locations.

Response: Good point, since that conclusion seems to be very context-specific we have removed it from the discussion (marked as deleted, p. 19).

Comment 14: Online Table S2 Some more explanation of the numbers in the table would help. For example could you briefly explain what the 'non-MNCH' visits were? These are the 243 visits (2,158 – 1,915) which are not included in Online Table S2.

Response: We have added some explanation in the notes for Online Table S2 and included the client flow tool itself as a supplemental file. Non-MNCH visits excluded from the denominator in Online Table S2 consist of any visits in which the client did not receive ANC, PNC, or child health services during their visit as defined in the table notes, but accessed other services such as HIV, nutrition, or laboratory tests (HIV counseling/testing; HIV care; PMTCT; STI screening; STI treatment; TB care/treatment; maternal, infant and young child nutrition counseling; maternal, infant, and young child nutrition support; iron folate-mother; dispensing drugs, laboratory test). So for example, a pregnant woman who arrived at the facility for a laboratory test or picked up medication and left without any providers indicating that they had provided her antenatal care, or a woman who arrived with her young child and accessed only HIV/STI services for herself, would have been included in our overall sample but not specifically defined as an MNCH visit.

VERSION 2 – REVIEW

REVIEWER	Beena Varghese Public Health Foundation of India, Gurgoan, India
REVIEW RETURNED	20-Dec-2017

GENERAL COMMENTS	Very well revised, authors have carefully considered comments and suggestions from all reviewers or have provided adequate justifications when required.

REVIEWER	Andrew Hinde University of Southampton United Kingdom
REVIEW RETURNED	22-Dec-2017

GENERAL COMMENTS	Thank you for your detailed response to the points I raised in my report on the previous version. I am happy that you have either addressed my concerns or provided good reasons for maintaining the original (e.g. with respect to the model of MNCH-FP integration as a predictor of time spent at a facility. I have three small points to raise: p. 7, in the results section, para. 2, l. 3, I think that in Embu Health Centre 2 the mean was only 30.65 minutes, which was the lowest mean among the Kenyan sites.

	Tables 2A and 2B. Can you indicate on these tables that you measure times in minutes? p. 12, l. 8 Insert 'times' after '2.369'.

REVIEWER	Charlotte Warren Population Council USA (previously Kenya)
REVIEW RETURNED	09-Jan-2018

GENERAL COMMENTS	Postpartum Family Planning Integration with Maternal, Newborn, and Child Health Services: A Cross-Sectional Analysis of Client Flow Patterns in India and Kenya Thank you for the opportunity to review this paper. It captures the issues well. Please see a couple of comments below Introduction Line 28 – why not postnatal care too? Even though it is less common than ANC, women do attend and you do measure PNC integration. Methods Line 46 Embu was also where comprehensive PNC was introduced in 2006-8-a joint project by PC and jhpiego - which included PP-FP: See https://www.ncbi.nlm.nih.gov/pubmed/19946120

VERSION 2 – AUTHOR RESPONSE

Our thanks again to the reviewers for their time and review of our revised manuscript. Our responses to comments are detailed below.

Reviewer 1, Comment 1: Good point regarding line 28 in the introduction, we have revised that line to include PNC. I think we originally phrased it that women "often attend antenatal care (ANC) or child health services" simply because PNC attendance may not be as frequent as accessing ANC or child health services. However, we agree that women do attend PNC as well and we view all three as valuable contact points for FP integration.

Reviewer 1, Comment 2: Thanks, we have adjusted the first paragraph in the methods section to reflect the joint projects' initial work on comprehensive PNC (2006-8) versus the introduction of PPIUD in 2007. We have added the citation provided to the third paragraph in the methods section which links to other articles that describe in more detail interventions conducted at the study sites.

Reviewer 3, Comment 1: Thanks, that is correct regarding facility travel time in Kenya, Embu Health Center 2 was the lowest mean at 31 minutes (rounded). Double-checking against the table, we also noticed that Bondo Health Center 1 should have been listed as the highest mean travel time for Kenya at 57 minutes. Given that average travel time ranged from 31 to 57 minutes in Kenya and 30 to 58 minutes in India, we suggest revising the results to simply state: "In both India and Kenya, the average length of time the client spent traveling to the facility ranged from about half an hour to an hour."

Reviewer 3, Comment 2: We have indicated on Tables 2A and 2B that time is measured in minutes.

Reviewer 3, Comment 3: On p.12, we have inserted "times" after "the odds of integration are 2.369".